

For example, Unexamined Japanese patent Application Laid-Open

B1  
Specification No. 60-118236 discloses a method in which a sol containing a photocatalyst precursor (for example an organotitanate) is coated on the surface of a substrate, and the resultant film is calcined to thereby convert the photocatalyst precursor into a photocatalyst while immobilizing the formed photocatalyst on the surface of the substrate. However, this method includes a step for forming crystalline microparticles of a photocatalyst, wherein this step requires calcination at high temperatures. Therefore, this method has a disadvantage in that, when the substrate has a large surface area, it is difficult to perform the immobilization of the photocatalyst.

At page 6, line 17, replace the paragraph beginning, "As a method which uses a sol" with the following paragraph:

B2  
As a method which uses a sol containing a photocatalyst (and which, hence, does not require a step for forming crystalline microparticles of a photocatalyst), Unexamined Japanese Patent Application Laid-Open Specification No. 6-278241 discloses a method for immobilizing a photocatalyst on the surface of a substrate, in which a water-peptized sol of titanium dioxide is coated on the surface of a substrate. However, since a titanium oxide sol cannot exhibit a film-forming property under moderate conditions, this method also requires calcination at high temperatures. Further, the film obtained by this method is brittle and easily broken and comes off from the substrate, so that it is impossible to allow the photocatalyst to exhibit its effect at the surface of the substrate.

At ~~page 28, line 5~~, replace the paragraph beginning, "In the present invention," with the following paragraph:

<sup>B3</sup> In the present invention, the form in which the photocatalyst to be subjected to the modification treatment is provided is a factor important for the modified photocatalyst sol to exhibit good dispersion stability, good film-forming properties and various functions. In the present invention, for the below-mentioned reason, it is preferred that the photocatalyst to be subjected to the modification treatment is not in the form of a powder but in the form of a sol. In general, in the case of a photocatalyst powder comprised of microparticles, single crystal particles (primary particles) are strongly aggregated to form secondary particles, thus causing a great loss of the surface properties of the primary particles. It is very difficult to disaggregate the secondary particles back into primary particles. By contrast, in the case of a photocatalyst sol, photocatalyst particles are not dissolved but present in a form close to the primary particle form, so that the surface properties of the primary particles can be effectively utilized. Therefore, a modified photocatalyst sol obtained from a photocatalyst sol exhibits not only good dispersion stability and good film-forming properties but also various functions. In the photocatalyst sol used in the present invention, the photocatalyst particles may be either in the form of primary particles or in the form of a mixture of primary particles and secondary particles. In general, in the photocatalyst sol used in the present invention, the photocatalyst particles are present in the form of a mixture of primary particles and secondary particles.

At ~~page 69, line 5~~, replace the paragraph beginning "With respect to" with the following paragraph:

B4  
With respect to the carbon-carbon unsaturated bond-containing compound which can be used for introducing into the Si-H bond-containing compound of formula (14) a C<sub>1</sub>-C<sub>30</sub> fluoroalkyl group as a function-imparting group, examples of such carbon-carbon unsaturated bond-containing compounds include an olefin, an allyl ether, an allyl ester, a vinyl ether and a (meth)acrylic ester, each independently having a perfluoroalkyl group represented by the following formula (15):



Wherein g is an integer of from 0 to 29.

At ~~page 74, line 24~~, replace the paragraph beginning, "As catalysts" with the following paragraph:

B5  
As catalysts for the hydrosilylation reaction, platinum group metal-containing catalysts, i.e., compounds of ruthenium, rhodium, palladium, osmium, iridium or platinum are suitable. Of these, platinum compounds and palladium compounds are preferred. Examples of such platinum compounds include platinum (II) chloride, hydrogen tetrachloroplatinate (II), platinum (IV) chloride, hydrogen hexachloroplatinate (IV), ammonium hexachloroplatinate (IV), potassium hexachloroplatinate (IV), platinum (II) hydroxide, platinum (IV) dioxide, dichloro(dicyclopentadienyl)platinum (II), a platinum-vinylsiloxane complex, a platinum-phosphine complex, a platinum-olefin complex and metallic platinum,

wherein metallic platinum is used either without a carrier or in such a form as carried on a carrier, such as alumina, silica, activated carbon or the like. Examples of palladium compounds used as catalysts for the hydrosilylation reaction include palladium (II) chloride and palladium (II) oxide.

At page 94, line 25, replace the paragraph beginning, "Examples of the above-mentioned fluoro resins" with the following paragraph:

B6  
[Examples of the above-mentioned fluoro resins include PTFE; ploy(vinylidene fluoride); resins, such as an acrylic-fluoro resin, an epoxy-fluoro resin, and a urethane-fluoro resin, wherein the resin contains 1 to 80 % by weight of fluorine; copolymers of a fluoro-olefin and a carbon-carbon unsaturated compound such as a vinyl ether, a vinyl ester, an allyl compound, and a (meth)acrylate ester; and the like. The above-mentioned fluoro resins may be in any form of a solution thereof in a solvent, a dispersion thereof in a solvent, or a powder thereof. Further, the fluoro resins may contain various additives, such as a crosslinking agent, a catalyst and the like.]

At page 115, line 5, replace the paragraph beginning, "In the present invention," with the following paragraph:

B7  
[In the present invention, as examples of light having energy which is larger than the band gap energy of the photocatalyst and light which can be absorbed by a sensitizing dye, there can be mentioned light obtained in the general residential environment (such as sunlight and room light), black light, and light emitted from a xenon lamp or a mercury lamp or the like.]

At page 115, line 13, replace the paragraph beginning, "Further, if desired," with the following paragraph:

B8  
Further, if desired, additives generally added to conventional coating compositions and the like may be chosen according to various purposes and added to the modified photocatalyst sol or the modified photocatalyst composition of the present invention (including the self-stratifying or self-gradating type modified photocatalyst composition). Examples of these additives include a pigment, a filler, a dispersant, a light stabilizer, a wetting agent, an antifoaming agent, a plasticizer, a film-forming auxiliary, a rust preventive agent, a dye, a preservative and the like. Such additives can be used individually or in combination.

At page 116, line 23, change the paragraph beginning, "When the above-mentioned shaped article" with the following paragraph:

B9  
When the above-mentioned shaped article or functional composite provided in the present invention exhibits a photocatalyst activity, such as the activity to decompose organic substances, such a shaped article or functional composite exhibits various functions, such as an antibacterial function, a staining resistance function, a smell preventive function and an Nox-decomposing function. Therefore, such a shaped article or functional composite can be used in various fields, such as environmental clean-up, for example, clean-up of the atmosphere, water or the like.

At page 158, line 19, replace the first paragraph under the heading, "Comparative Example 2" with the following paragraph:

B10  
To 250 g of Polydurex G633 (trade name of an aqueous acrylic-silicone emulsion (solids content: 46 % by weight, pH: 8.8), manufactured and sold by Asahi Kasei Kogyo Kabushiki Kaisha, Japan) was added, as a film-forming auxiliary, 22.8 g of CS-12 (trade name of 2,2,4-trimethyl-1,3-pentanediol monoisobutyrate, manufactured and sold by CHISSO Corporation, Japan) over 20 minutes at room temperature while stirring. To the resultant mixture, also as a film-forming auxiliary, 22.8 % of an aqueous solution of butyl cellosolve (50 % by weight) as added over 20 minutes at room temperature while stirring, followed by further stirring at room temperature for 3 hours, thereby obtaining an acrylic-silicone emulsion containing film-forming auxiliaries, wherein the solids content of the emulsion was 38.6 % by weight.

At page 159, line 22, replace the first paragraph under the heading, "Example 13" with the following paragraph:

B11  
75 g of the sol obtained in Example 6 was added to 100 g of the acrylic-silicone emulsion containing film-forming auxiliaries, which was obtained in Comparative Example 2, over approximately 10 minutes at room temperature while stirring, thereby obtaining a modified photocatalyst composition.

At page 189, line 17, replace the first paragraph under the heading, "Example 19" with the following paragraph: